IN SENATE OF THE UNITED STATES.

APRIL 17, 1838.

Submitted, and ordered to be printed.

Mr. FULTON submitted the following

REPORT:

[To accompany Senate bill No. 304.]

The Committee on Public Buildings and Grounds, in execution of the general duty devolved upon them by their appointment, ask leave to present the following report, in part:

Immediately upon the organization of the committee, their attention was directed, by complaints and suggestions from various quarters, to the situation of the new buildings, in the process of construction, for the accommodation of the Treasury Department and the Patent Office. A careful inspection and examination of the buildings were thereupon personally made by the committee, and inquiries had, and information sought, from the architect and principal workmen who were engaged in their erection. It soon became apparent that the work had been carried forward with little understanding of the entire plan for its completion, and that mistakes had been committed, and defects existed, not foreseen or apprehended in its commencement or prosecution. Indeed, little more of preparation appeared to have been made, at the time of entering upon the work, than the adoption of profile views and plans of elevation and dimensions of the buildings, and their determinate locations on designated positions in the city. Whatever qualification (if any) this latter remark should receive, will appear in the progress of this report.

The first and principal matter of observation and inquiry with the committee, was the *situation* of the new Treasury building, on the east of the President's square, and with the line of Fifteenth street. It was obvious, upon inspection, that the position of this edifice was such as to imply a design, on the part of the architect, to destroy the building at present occupied by the State Department. The walls had been brought almost into juxtaposition with that structure; and their unfinished state, at the northern extremity, clearly indicated the intention of extending them *through* and *over* the base of the old building, to conform to the arrangement and symmetry of the plan on which the work was proceeding. It was seen that the colonnade could not otherwise be carried out, nor the front wall be made to correspond with the part already constructed. Assuming, therefore, that the entire removal of the old building was within the original design of the architect, the committee sought for the occasion for fixing the definite location of the new building so immediately upon the line of

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the street. It was here again obvious, that the grade of the street could not be made to correspond with the level of the base of the colonnade, and that the inequality of the elevation of this base from the street, and its proximity to the line of the side-walk, would interfere with a direct approach *in front*, by a continuous flight of steps, to the edifice. On stating these difficulties to the architect, the committee were informed that the precise position of the building had been determined by the positive direction of the late President of the United States, on approving the plan of construction, so to fix its location *as to preserve the present office of the State Department.* But the committee were of opinion that, if such had been the instructions, they had now been rendered impracticable of execution, by the architect himself. Not only had the line of the colonnade of the new building been made to *project* nearer Fifteenth street, and its front wall to *recede* farther from the line of the street than the front wall of the old building, but there was a like want of conformity in the interior arrangement of all parts of the two buildings: in the halls and corridors, stair and passage-ways; the size and elevation of the rooms; the number and height of the stories; and, indeed, in each and every part of the internal and external structure. There seemed, therefore, in this point of view, to be no alternative to the necessity of *sacrificing the old building to the position of the new;* and the committee saw, with equal surprise and regret, that while the most serious objections and defects, and those too of a lasting and irremedial character, had been committed in the latter, under the pretext of adapting its architectural arrangement and means of accommodation to a connexion with the former, even this object was not likely, in any degree, to be attained. It was most manifest that no such adaptation of plans and purposes, so incongruous, could be effected. In the judgment of the committee, the architect either never did entertain the design to preserve the old building, and bring it into harmony of appearance and use with the new, or he was destitute of the requisite skill to accomplish these ends.

Another objection to the location of the new building presented itself, in its *relative* position to the grade and line of the street. The inclination of the plane, from south to north, was so considerable along the whole line of base, as to render necessary an exterior parapet-wall, to conceal from view, at one extremity, the rough work of the foundation, and, at the other extremity, to protect the building from the sliding earth of the adjacent but more elevated side-walk. Had the building been placed further from the street, the front might have been relieved by a sloping bank terrace, with the ornament and refreshing foliage of plants and trees, after the manner of other parts of the public grounds. As the building now stood, the access to the front entrance, from the street, must be by a double flight of side steps opposite the centre door. The grade of the street might be somewhat reduced, but not so as materially to improve the convenient approach to the building without great expense.

Had the objections, however, been confined to the before-mentioned particulars, much as their occurrence was to be regretted, the committee, considering the progress already made in the work, and the cost which had been incurred, would have hesitated, even in entertaining a proposition for any interposition to its further prosecution. But their inquiries necessarily led to a consideration of the *plan of the structure* itself, independent of a regard to its location or proposed connexion with any other

building. And here, difficulties of a more serious nature were started. The principal halls or passage-ways appeared to the committee to have been unnecessarily and inconveniently contracted. Their width, when finished, would be a little over *nine* feet; a space certainly very disproportionate to their great extent, and altogether too restricted for the accommodation of the great number of occupants and visiters on business, to the numerous apartments. It was also doubted whether windows of sufficient size could be introduced into these narrow halls, even with the aid of the transverse passages, to render them as light and airy as might be needful.

The plan of the building also suggested serious doubts how far the *basement* and *attic* stories would furnish fit rooms for occupation by clerks, and those other purposes for which they were wanted. The front range in the *basement* could receive but a secondary light through the corridor immediately under the colonnade, and the front range of the *attic* was to be obscured by the frieze and architrave of the entablature. It was also feared that the basement rooms would be damp, and unfit not only for personal occupation, but, if closed, for the safe-keeping of records and papers.

But, *over all*, an objection, that the building was inartificially and insecurely constructed, had been suggested to the committee. Of this, they felt themselves wholly incompetent, by any personal examination or attention of their own, satisfactorily to judge. It was enough to impress their minds with a painful sense of responsibility, that the durability of a structure *designed for ages*, and on the thoroughness and abiding strength of which was to depend the safety of the archives of Government, had already, in its very process of construction, come to be distrusted, and that upon the fidelity of the committee it might depend to arrest, in time, the danger of future incalculable mischief. A like suggestion of imperfect construction had also been made in reference to the walls of the new PATENT OFFICE, and increased the importance of being well advised of the ground and extent of these objections.

In view of all the foregoing circumstances and considerations, and adverting to the law of Congress, which referred the selection of sites, the plans for the buildings, and the mode of construction, to the direction of the President of the United States, the committee deemed that they should best fulfil the obligations of duty by an application to him, to appoint an architect of approved skill and eminence, to survey and examine the buildings, and report the result of his judgment upon the whole matter. Accordingly, on the 11th January last, they addressed to the President the communication, (marked A,) which accompanies and makes part of this report. In compliance with the request of the committee, the President authorized the employment of Thomas U. Walter, Esq., of Philadelphia, an architect of great distinction, and superintendent of the construction of the Girard college in that city, for the required service. Mr. Walter, on presenting himself to the committee, was furnished with general instructions to the various objects of inquiry, and especially directed to a careful examination of the whole work, and a full expression of his opinion thereon. His report, in writing, subsequently made to the committee, (and marked B, among the papers,) is herewith submitted.

On receiving Mr. Walter's report, the committee thought it due to Mr. Mills, the architect of the buildings, to subject it to his inspection, and thus

afford him an opportunity to reply to, or explain, the objections to his plans and work which it was found to contain. A copy was accordingly furnished to him, and his answer thereto (marked C) accompanies this report.

The opinions and judgment expressed in the report of Mr. Walter, and the reply of Mr. Mills, being extremely variant and irreconcilable, the committee sought information more in detail, from Mr. Brown, the principal stone-mason, and Mr. Wood, the head carpenter, employed upon the work. The oral communications of these gentlemen have been properly regarded in the conclusions to which the committee were ultimately brought. They were also assisted by representations, both oral and written, from Mr. William Archer, a master-builder, formerly in the employ of the Government.

While the subject was yet under consideration, it came to the knowledge of the committee that Alexander Parris, Esq., of Boston, a professional architect, of deserved celebrity, particularly and highly recommended to the employment of the Government in another branch of the public service, was in the city, to whose judgment and decision might beneficially be referred the differing and conflicting opinions of Mr. Walter and Mr. Mills. Mr. Parris was, withal, not only distinguished for science in his profession, but for skill and success as a *practical* artisan. He had constructed numerous public and private edifices, and, more recently, had been engaged as an assistant to Colonel Baldwin, on the dry docks at Charlestown, Massachusetts, and Gosport, Virginia, and was particularly conversant with the business of stone masonry. To obtain the aid of the advice of this gentleman to their own deliberations was the wish of the committee; and, with the approbation of the President, he was engaged to resurvey and examine the character of the whole work. The reports of Mr. Walter and Mr. Mills were put into his hands, and the points of difference were thus fully made known to him. The instructions given to him by the committee (marked D) and his subsequent report, (marked E,) make further parts of this report.

The committee have been thus particular in the history of their proceedings, that the House may the better be enabled to determine the degree of confidence which should attach to their results. It is proper, in this connexion, to state, that early in the course of the foregoing inquiries, and before any report had been received from Mr. Walter, the committee of the House had been joined by the committee of the Senate, under the resolutions of the respective branches, authorizing a co-operation and concurrence in the discharge of their common duties; and that, afterwards, in all matters touching the subject of this report, the two committees acted together and in concert. As there has been an entire agreement, by *every* member of *each* committee, in the opinions and judgment hereafter expressed, they are to be received as the issue of the mutual consultations and joint advice of *all*.

The committee, then, have come to the following conclusions:

I. *That the location of the new Treasury building, on Fifteenth street, in the precise position given to it, is injudicions and highly objectionable.*

It is obvious that the grade of the street can never be conformed to the base of the building. It must continue, after any reduction, con-

sistent with the least practicable ascent to the level of the intersecting streets, to present, along the line of the building, an inclined plane, and thus exhibit to the eye the awkward appearance of a continuous colonnade, at an unequal height from the elevation of the contiguous foot-way. The proximity of the building to the street will likewise preclude any other mode of entrance to the platform of the colonnade, than by narrow and diminutively disproportionate steps, placed perpendicular to the base, and opposite to the centre, and *under which*, also, must be the entrance-way to the front corridor in the basement. The extension and number of steps at the ends must necessarily be unequal, in proportion to the difference in elevation of the opposite extremes from the earth. Besides, by the position and extent of the building, if the work be carried to its completion on the present plan, the original design of the arrangement of the streets and squares of the city will be prejudicially invaded; the view from F street, south, will be entirely shut out; and the principal objects of attraction and regard, the capitol and the President's house, will be concealed, each from the other, so as materially to impair the beauty and grandeur of the prospect from both. How far these and similar considerations are entitled to regard, will be for Congress, upon admonition of the effect which is about to be produced, to decide.

II. *The erection of the new building, upon its present site and plan of construction, must unavoidably produce the removal and destruction of the building now occupied by the State Department.*

If it was the intention of the late President of the United States to preserve the last-mentioned building, that intention has been disregarded by the architect, in the position and plan of the new structure. The *old* cannot remain, and the *new* be completed. Should it be suggested that the walls of the new building may be terminated with their present extension north, it need only be replied, that this would give unequal length to the parts on the right and left of the centre, and, besides, would allow neither of entrance nor admission of light on the north of the building. Such termination, therefore, of the walls, is wholly inadmissible. To extend them still further north, according to the plan, is to render unavoidable the removal of the present building. A diagram, which accompanies this report, will show how utterly incongruous must be the attempt to preserve any portion of this edifice. Conforming in nothing, neither in material, arrangement of rooms, height or number of stories, nor elevation of roof, it could be made to correspond with no part of the new plan, but by alterations and expense greater than the cost of its entire demolition, and the substitute of an appropriate order of work in its stead. The opinion of the architects consulted by the committee, is full and explicit on this point. And even Mr. Mills was constrained to admit that the entire removal of the old building was the best and most expedient course to be adopted, if the new building is to be prosecuted to its completion.

III. *The plan and interior arrangements of the new building are manifestly defective; neither adapted to the object of its construction, nor admitting the necessary accommodations for the present wants of the department.*

The Secretary of the Treasury, in an official communication to the President, (marked F, with the documents accompanying this report,) has

certified that *one hundred and thirty-two* rooms are now required for the convenient transaction of the business of his department. It is reasonable to believe, that, with the rapid growth and vastly expanding and multiplying interests of the country, still more and more ample accommodations will continually be demanded for the management of the concerns of the nation, in every department of the Government. In the building now erecting, one-half, at least, of the rooms in the basement and attic stories, will be totally unfit for office purposes. In the emphatic language of Mr. Walter, "the rooms in the basement story will be entirely too dark and damp; and the apartments in the third story, having windows but half the size of those below, will be so darkened by the colonnade as to render them almost useless. The only comfortable rooms in the building will, therefore, be found in the first and second stories, which embrace but seventy-five apartments." In accordance with this, is the opinion of Mr. Parris. He pronounces, "From such observations as I have been able to make of the rooms in the basement story, I am of opinion that they will be too dark for the occupation of clerks, and too damp, when closed, for the deposite of papers." And in relation to the front range of rooms in the attic, he adds: "All these arrangements combine to render the rooms dark; and, in my opinion, they will not be sufficiently lighted, especially in cloudy weather, to render them suitable for the occupation of clerks." Both Mr. Parris and Mr. Walter alike condemn the construction of the principal passage-way. The former reports that he finds the centre or main passage to be only nine feet four inches in width, and much too narrow either for lighting or ventilating so great an extent. He further observes that, "considering the length of the building, the number of rooms to be entered through the passage, the many occupants and others having occasion for ingress and egress through it, in my opinion this great thoroughfare for the whole building should, at least, have been *fifteen* feet in width; and I have not been able to perceive any sufficient reason for confining this important passage to its present reduced limits. I consider this defect without remedy." To the same point Mr. Walter remarks, that "all the passages in the building are entirely too narrow for either beauty, convenience, or comfort. The main passage, by which all the rooms are approached, will be four hundred and fifty-six feet in length, (should the whole design be carried out,) while its width is only *nine and a half feet.** The only means of lighting this passage is by a window of four feet by eight, at each end, and the secondary lights it may receive from the cross entries, stairways, and glass that may be inserted in the doors: all of these, however, will not amount to much. A passage as long as the one in question should have been at least *fifteen* feet wide, with as much light at each end as could possibly have been introduced. Ample arrangements should also have been made for introducing intermediate lights." The committee adopt the foregoing opinions of the architects, and also concur in the judgment pronounced by them, that these are capital defects, and admit of no remedy.

* Mr. Walter took the width of the main passage from the statement of one of the workmen; while Mr. Parris, upon actual admeasurement, found the width to be but *nine* feet four inches.

IV. *The construction of the walls of the building is imperfect, inartificial, and deficient of the requisite strength for a secure and durable structure.*

To this conclusion the committee are brought by the description and representations of the two architects, Messrs. Walter and Parris, and the confidence reposed in their skill and capacity to form a correct opinion of the character of the work. It is not to be expected, that, on a question of practical architecture, depending upon the proper application of technical rules of art, the committee would hazard an expression of their own uninstructed judgment. They have resorted to the best sources of information which were open to them; they have carefully examined the evidence which has been obtained, and compared the representations of others with their personal observations; and they but declare the effect produced upon their own minds, by a candid and faithful regard to all these considerations. The House will be put in possession of all the information, and it will be made in the power of every member, if the committee have erred, to avoid being misled by the opinions here expressed.

The principal defects under this head of the subject, may be resolved into the want of sufficient thickness to the walls, and a proper bond of connexion between the blocks composing the antæ and the courses of the ashlar. This will be better understood by the following extract from the report of Mr. Walter: "My decided opinion, (says he,) in reference to the subject, is, that all the outside walls are entirely too thin and too weak for so large a vaulted building as the one in question. These walls should have been at least three and a half feet thick, exclusive of the antæ, (or pilasters, as they are commonly called,) instead of which, they are only two feet three inches." After treating of the mode in which the walls should have been constructed, alluding to the defects of the work, he subjoins, "Under existing circumstances, the whole bond of the ashlar is cut off, from the bottom to the top of the building, on each side of every one of the antæ; while the antæ themselves offer little or no resistance to lateral pressure, being composed of large stones set on the end of each other, without a single *cramp* or *tie* to hold them to the ashlar, or a *dowel* to keep them in their places." Again, he remarks, that "the strength which would have been derived from these antæ, had they been constructed according to the principles of stereotomy, is not only lost by the manner in which they have been built, but the walls, which would have been too weak without them, are actually rendered weaker by their introduction." In reference to the effect upon the stability of the building by the mode of arching which has been adopted, Mr. Walter expresses the opinion that "this plan of arching can never be executed with safety to the building. The arches in the lower story would probably stand, provided that the centres are kept under them until the walls receive the superincumbent weight of the structure; but the fate of the upper arches, if executed upon the same plan, is certain." Mr. Parris certifies his concurrence in the description given by Mr. Walter of the character and construction of the work, and gives it as his decided opinion, "that the walls of the building are not sufficiently strong to sustain the lateral pressure, if the arches are to be continued above the present height."

It is due to Mr. Mills here to state, that he insists upon the sufficiency of the work to the stability of the building, and claims to defend the plan of

construction, by references to the authority of writers on the science of architecture, and the alleged success of various similar plans for public edifices, furnished by him, to competent builders. It is but an obvious suggestion, however, that, in a matter so deeply affecting his character as an artist, he is greatly interested to justify his design of the building and the manner of its execution. The work has been done under his particular direction, and his capacity and fidelity, and perhaps even his continuance in the employ of the Government, are involved in the question. Not so with Messrs. Walter and Parris. With at least equal science, skill, and experience, they are brought to the task of examination and decision. They have no pride of opinion to bias a present judgment; no preconceived notions of what would accomplish the object, to possess the mind with the fitness of its execution. In the comparison of circumstances and evidence, the committee cannot but give most credit to those facts and representations, which an unprejudiced and unbiased intelligence shall furnish.

Upon the foregoing views of the whole subject, the committee are *unanimously* of the opinion, that it would be *unwise* and *inexpedient* to suffer the work of construction, upon the present plan of the new Treasury building, to proceed further. They believe, if the building were completed, it would wholly disappoint the wishes and intentions of the Government. It would be neither tasteful, convenient, nor secure. They recommend, therefore, that the walls be taken down, and immediately removed, and applied to the erection of a building for the accommodation of the Post Office Department, on the site of the office recently destroyed by fire; and to this end they have prepared, and herewith report, a bill.

In offering this proposition, the committee are fully aware of the responsibility they assume to Congress and the nation; but they justify it upon the score both of *necessity* and *economy*. A new Post Office building is as much needed as are the accommodations for the Treasury. Both Departments are now in leased, inconvenient, and destructible tenements, the temporary accommodations alike sought from the destruction of past conflagrations. In the process of taking down the walls of the new building, the materials, with little additional expense, may be directly transported to the site for the Post Office, and the work of construction *there*, be almost immediately commenced. The committee have the opinion of Mr. Walter, concurred in by Mr. Mills himself, that "there would be no difficulty whatever in arranging the design for the Post Office, so as to bring all the materials of the Treasury building into use, with very great advantage."

It is true, indeed, that by adopting the proposition of the committee, much labor in building up the present work will be lost. But is not this preferable to prosecuting an imperfect work at the hazard of an eventual sacrifice of that which is far more to be regarded than the expense of labor—convenience in the transaction of business, and a sense of security in the strength and enduring character of the structure? Besides, in the matter of pecuniary account, the advantage is on the side of the removal of the walls of the new building. By an estimate of Mr. Mills, the loss in labor, and in the materials which cannot be preserved, (principally the mortar,) will be not far from eighty thousand dollars; while the saving of the present building of the State Department, which must be destroyed if the new building proceeds, together with the saving of expense in

grading the street, greatly exceeds that amount. The State edifice was built since the last war with Great Britain; is of thorough workmanship, upon the plan of its construction; and is represented to have cost about *ninety-five* thousand dollars. It may well be suffered to remain, to be hereafter improved for many of the purposes of the Government, even when more ample accommodations shall have been provided for the principal departments.

One further suggestion on this branch of the subject, and the committee will hasten to close this already too extended report. The present plan of the Treasury building contemplates a corresponding structure on the opposite side of the President's square, on Seventeenth street. This will involve the occasion for the destruction of the building occupied, at present, by the Department of War, also constructed since the peace, at a like cost of other *ninety-five* thousand dollars. In carrying out, therefore, the schemes of the architect of the present building, property of the value of nearly *two hundred thousand dollars* would be sacrificed to the saving of the cost of labor on the new building, *less* in amount by nearly *one hundred and twenty thousand dollars!* In other words, the sacrifice to the Government, by adopting the recommendations of the committee, would be considerably less *in the first instance*, and vastly so *eventually*, than the inevitable loss by pursuing the plan of the present work, even were there no objections to the manner of its execution. Should the walls be removed, and the materials applied to the construction of a Post Office building, a new structure for the Treasury might be erected near the same location, with some change of position, and upon a plan better adapted to the site; or a new location might be selected, which would admit of an edifice upon an enlarged design, to embrace the required accommodations for all the departments. Whenever this shall be done, the committee cannot but earnestly advise to the substitution of *marble* or *granite*, on the exterior walls, for the pervious and destructible *sand-stone*, which can only be protected by the frequent application of paint from defacement and decay, under the ordinary action of the atmosphere and climate.

In respect to the plan and construction of the new PATENT OFFICE, the inquiries and examination made by the committee resulted in a satisfactory assurance that, whatever defects have been discovered in either, the work has not progressed so far as to preclude correction, at little comparative expense, and without prejudice to the completion of the building. These defects are distinctly pointed out in the report of Mr. Walter, and, for the most part, are recognised in the report of Mr. Parris; and both gentlemen suggest the application of appropriate and effectual measures of remedy. Nothing more of duty, therefore, remains to the committee, in relation to this building, than to recommend that the President direct the proposed alterations to be made, and the work to be completed, in conformity with the advice of those architects.

All which is respectfully submitted.

A BILL providing for the removal of the walls of the Treasury building, and for the erection of a fire-proof building for the Post Office Department.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President of the United States be, and he hereby is, authorized to cause the unfinished walls

of the Treasury building, now in the process of construction, to be taken down, and the materials to be removed and applied to the construction of a fire-proof building of such dimensions, and upon such plan of arrangement, as may be required for the use and accommodation of the Post Office Department, on the site of the Post Office building recently destroyed by fire; and, for this purpose, that he be authorized to appoint a skilful architect to prepare and submit to him the necessary plans for the proper construction of such building, having regard to the use of the materials aforesaid; which, being approved by him, shall be conformed to in the erection of the structure. And the said architect may be continued in the superintendence of the construction of the building, or another employed in that service, as the President may judge best.

SEC. 2. *And be it further enacted*, That, for the erection of the building authorized by the first section of this act, in addition to the materials to be removed and applied thereto, as therein mentioned, there be, and hereby is, appropriated the sum of one hundred and fifty thousand dollars, out of any money in the Treasury not otherwise appropriated by law.

A.

HOUSE OF REPRESENTATIVES,
January 11, 1838.

SIR: The Committee of the House of Representatives on Public Buildings and Grounds, in discharge of their assigned duties, have had their attention particularly directed to the new Treasury building, now in the progress of construction. On a careful and repeated examination of the site of its precise location, they have been led to fear that the architect must have unfortunately misapprehended the opinion of your predecessor in respect to the line of position for the foundation of the building, inasmuch as it is most manifest that, if it was the *intention* to preserve the present building occupied by the State Department, (which is the reason given by the architect for projecting the new edifice almost upon the line of Fifteenth street,) that building must, nevertheless, be destroyed in carrying out the plan. It neither corresponds on its front line with the line of the colonnade, nor with the face of the principal wall.

It is, moreover, of different altitudes, in its whole elevation, and in each of its stories. The base, also, being greatly extended on an inclined plane, will render it difficult to conform the graduation of the proximate streets to the convenient approach and occupation of the building, and will always present an objectionable adaptation of the style of architecture to the view. Should the plan be completed, as now proposed, an unfortunate obstruction will be interposed to the prospect of the capitol and of the President's house, from those positions, respectively.

There are also objections, in the minds of the committee, to the plan of the edifice itself, especially in the construction of the halls or passage-ways and in the stairways; and in a further supposed defect of necessary means for throwing into these parts of the building sufficient light. In this latter respect, it is feared the upper rooms will be deficient.

The committee, however, distrusting their own taste and judgment in all the above particulars, are desirous of the opinion of some distinguished

and skilful artist, unprejudiced by any predilections or preferences, the natural result of competition in the preparation of the original design of the building, or under the influence of local, incidental, and subordinate considerations.

They find, in the fifth section of the act providing for the erection of the new Treasury building, full authority given to the President over the selection of the site, and the plan of construction; and they now respectfully request, that you would appoint some able architect to survey the present work, and advise the committee therein, so that they may be the better enabled to discharge their duty to the House and to the country, in a matter of great and abiding interest.

With the most respectful consideration,

I have the honor to be your obedient servant,

LEVI LINCOLN,

Chairman, and by order of the committee.

To his Excellency the PRESIDENT
of the United States.

The President assents to the employment, by the committee, of Thomas U. Walters, architect of the Girard college, Philadelphia, for the purposes specified in the within communication.

M. V. B.

JANUARY 12, 1838.

B.

CITY OF WASHINGTON,
January 29, 1838.

GENTLEMEN: Having been directed by your letter of the 11th instant to examine the new Treasury building, now in progress of execution in this city, for the purpose of laying before you my "opinion as to the fitness of the site selected for the location of the edifice, and, also, the adaptation of the plans to the object and uses for which it is to be erected;" and having been subsequently directed by you to extend my observations to the stability of the structure, and its architectural effect; also, to the solidity of the building now being erected for the Patent Office, I have the honor to communicate the following as the result of my examinations:

Previous to entering upon the subject, I must be allowed to say that the duties devolved upon me, in pursuance of your appointment, are delicate and unpleasant in the extreme; and that nothing less than a call from the councils of the nation would induce me to do so much violence to my feelings as to attempt the discharge of them. If, therefore, I should find myself under the necessity of advancing opinions at variance with the views and practice of your venerable and accomplished architect, for whom I entertain the highest regard, I must beg you to attribute my frankness to a determination to discharge the duties imposed upon me with the strictest impartiality, and without respect to persons.

The first object that presents itself for consideration is the new Treasury building; which I shall proceed to examine in regard to what I consider the principal objections to be urged against it, which are:

First—The unsuitableness of the site;
Secondly—The weakness of the structure;
Thirdly—Its want of adaptation to the purposes for which it was intended; and,
Fourthly—Its architectural appearance.

I would respectfully observe, in reference to the unsuitableness of the site, which forms the *first* objection, that should the building be completed according to the present design, the plan of the city will be materially interfered with, its beauty will be marred, and the objects of its founders thwarted. By reference to the map of the city, it will be seen that the President's mansion (which will be partially masked by the building in question) forms a centre point from which all the avenues in its vicinity have been made to radiate, for the obvious purpose of bringing it into view from as many points of sight as possible. It should also be remarked that the Pennsylvania avenue, which forms one of the radii from the President's house, has been so located as to form a radius from the capitol also. By this arrangement, the President's house and the capitol are in sight of each other, and both buildings are in view from any intermediate point. If, then, the Treasury building should be finished according to the present design, these beautiful and interesting objects will be obscured from each other, and the interposing building will present an oblique front to the avenue, that will always have the appearance, at a distance, of being misplaced; while all the interesting associations that naturally arise from the unobstructed view of the capitol and the President's mansion will be lost. The view of the President's house from F street will also be cut off, which will likewise interfere very materially with the design of this part of the city.

Another objection to the present site arises from the insufficiency of the space it affords for the building, without encroaching too much on the President's grounds. This difficulty has, no doubt, been the cause of many of the defects which will be hereafter shown to exist in the plan of the edifice.

The rapid grade of Fifteenth street may also be considered as an important objection to the present site. The building, as it is now located, stands on an inclined plane of fourteen feet elevation, by which a most disagreeable effect is produced; one end of the basement being entirely out of the ground, while the other is completely buried. This defect will be much more evident when the basement shall have been surmounted by the colonnade.

The *second* objection advanced is the weakness of the structure. My decided opinion in reference to this subject is, that all the outside walls are entirely too thin and too weak for so large a vaulted building as the one in question. These walls should have been at least three and a half feet thick, exclusive of the projection of the antæ, (or pilasters, as they are commonly called;) instead of which, they are only two feet three inches. And here permit me to remark, that the strength which would have been derived from these antæ, had they been constructed according to the principles of stereotomy, is not only lost by the manner in which they have been built, but the walls, which would have been too weak without them, are actually rendered weaker by their introduction. These antæ, one of which occurs in every eleven feet around the whole building, should have been constructed in courses corresponding with those of the ashlar, so as

to have formed a bond with it. But, under existing circumstances, the whole bond of the ashlar is cut off, from the bottom to the top of the building, on each side of every one of the antæ; while the antæ themselves afford little or no resistance to lateral pressure, being composed of large stones set on the end of each other, without a single *cramp* or *tie* to hold them to the ashlar, or a *dowel* to keep them in their places.

We have, therefore, a straight joint on each side of every anta extending its whole height, by which all the horizontal bond of the wall is destroyed, except that which is obtained from the filling in of the brickwork, which is so reduced by the thickness of the ashlar as to afford but little strength.

Another defect is evident, in the vaulting of the vestibule on Fifteenth street: these arches are all groined, and one-half of their horizontal thrust is resolved on the front wall, without any counteracting influence whatever, except the wall itself; the bond of which is unfortunately cut off by the outside antæ, at the very points upon which the thrust of the arches is concentrated.

Had a greater number of columns been introduced in the vestibule, and a horizontal architrave placed upon them, an opportunity would then have been afforded for counteracting the lateral pressure of the arches by means of iron bars; this (I have been told by the superintendent) has been done wherever a wall occurred in which a band could be introduced; but in the very places where bands are most needed, the design of the building has precluded their introduction.

In the plans for the upper stories, I find that the rooms directly over the vestibule are increased, by omitting two of the cross-walls that occur in the lower story, so as to throw the whole width of the centre building into one room of fifty-four feet in each of these stories, the whole of which is to be groin-arched in three compartments, without any provision whatever for resisting the lateral pressure of the arches. This plan of arching can never be executed with safety to the building; the arches in the lower story would probably stand, provided the centres are kept under them until the walls receive the superincumbent weight of the structure; but the fate of the upper arches, if executed upon the same plan, is certain.

It must be evident to every one who will reflect for a moment upon the nature of the composition and resolution of forces, that a body cannot be kept at rest by two forces, unless they are equal, and in opposite directions. Now, it must be obvious that while the lateral pressure of an arch is horizontal, the resistance opposed to it by an ordinary wall, although horizontal in its effects, is still vertical, inasmuch as it arises alone from gravitation; hence, an arch without some counteracting force exerted in the direction of its thrust, at least equivalent to its lateral pressure, can never be at rest.

I would further remark, in reference to the stability of the structure, that no *cramps*, *ties*, or *dowels* have been used in any part of the work, except the bars before alluded to, which were introduced at the spring of the arches in the rooms where the partition-walls occur.

The necessity of securing every piece of ashlar to the brickwork by means of strong iron cramps, is evident from the fact that a difference exists in the expansibility of stone and brick, from an increase of temperature, and a consequent inclination to separate from each other. This method

of construction has been rigidly practised in the erection of every building that has ever come under my notice; its practice is certainly of the highest antiquity; and there is little doubt that some of the noblest structures of ancient times are indebted to the attention of their builders in this particular for the strength which has preserved them for many centuries.

The *third* objection that presents itself is the want of adaptation in the plans to the object and uses for which the building is being erected. That part of the structure designed for the Treasury Department embraces thirty-seven rooms in the *basement*, thirty-seven in the *first* story, thirty-eight in the *second*, and thirty-eight in the *third*—making, in all, one hundred and fifty apartments; the rooms in the basememt story will, however, be entirely too dark and damp for office purposes, and the apartments in the third story, having windows but half the size of those below, will be so darkened by the colonnade as to render them almost useless. The only comfortable rooms in the building will, therefore, be found in the first and second stories, which embrace but seventy-five apartments.

By reference to the report of the Secretary of the Treasury on the accommodations necessary for the convenient transaction of the business connected with the Treasury Department, it will be found that one hundred and thirty-two rooms are now required; it therefore follows that fifty-seven rooms in the basement and third stories must necessarily be used to accommodate the present business of the department.

I should also remark, that all the passages in the building are entirely too narrow for either beauty, convenience, or comfort. The main passage, by which all the rooms are approached, will be four hundred and fifty-six feet in length, (should the whole design be carried out,) while its width is only *nine and a half* feet; the only means of lighting this passage is by a window of four feet by eight at each end, and the secondary lights it may receive from the cross-entries, stairways, and glass that may be inserted in the doors. All of these, however, will not amount to much; a passage as long as the one in question should have been at least *fifteen* feet wide, with as much light at each end as could possibly have been introduced. Ampler arrangements should also have been made for introducing intermediate lights.

I am also of opinion that the rooms are generally too small. They seem, however, to conform very nearly with the dimensions given by the Secretary of the Treasury, and as it is designed to put but two clerks in a room, their smallness may not be very objectionable; although I am still of opinion that large and airy rooms are important to the health and comfort of those who occupy them, even admitting that the number be limited to two in each. I should therefore prefer these rooms, if they were generally about twenty by twenty-four feet, instead of fifteen by twenty feet six inches.

The *fourth* and last objection suggested in the premises, is the architectural appearance of the building. This I consider as by no means creditable to the nation; the long row of columns on Fifteenth street (being forty-two in number) standing upon an inclined plane of fourteen feet, without any break or projection to relieve the monotony, can never be considered as beautiful. The impression produced on the mind through the medium of the eye, by this long colonnade, will be similar to that made by a continuous sound of one melodious note in music; there will, it is true,

be architectural melody, (if you will allow the figure,) but no harmony, because there are no different principles of composition to harmonize: but one kind of idea will therefore be produced in the mind, which will be far from agreeable after the first impression has passed away.

The effect of the building when seen obliquely, so as to embrace in the view one of the ends, will be scarcely more agreeable; the architectural features on the ends being too ineffective to detain the eye from the tremendous colonnade on the flank. The abrupt termination of the flank portico will also be objectionable; it will always present an unfinished appearance, and the building will look as if it had once been surrounded with columns, which (by the way) would have given a much better architectural effect.

The edifice has also been brought into too close proximity with the line of Fifteenth street to admit of a suitable flight of steps. The platform on which the columns stand cannot now be approached in front, without encroaching too much on the sidewalks; the architect has therefore been under the necessity of designing the steps so as to ascend from each side, and obscuring their ends in front, by a wall corresponding in height with the basement. This method of approach to the building unquestionably wants beauty as well as grandeur.

On a full consideration of all these circumstances, I give it as my deliberate judgment, that the defects are beyond the reach of any remedy; and that the course dictated alike by prudence and economy, is, to take down the whole building.

Having thus candidly and unreservedly stated my opinion in reference to the new Treasury building, it devolves upon me to say something on the subject of the stability of the Patent Office. The same errors are evident, in a greater or less degree, in the construction of this edifice, that have previously been described as existing in the Treasury building. The walls of this structure are also too thin; the horizontal bond of the whole building is cut off by the antæ, which, it should be remarked, are only seven feet five inches apart; no cramps, ties, or dowels have yet been used; and no provision has been made for resisting the horizontal thrust of the arches, except in the small rooms.

The site of the building being advantageous, the walls being something thicker than those of the Treasury building, the interior space being ample for the purposes of the Patent Office, and adequate provision having been made for light and air, I shall endeavor to propose such alterations as will yet give stability to the structure.

Inasmuch as the antæ are commenced in long frustra, similar to those in the Treasury building, and as nearly all of the material for finishing them is in a state of preparation, I would suggest the propriety of building these antæ in thick and thin pieces, alternately; and that back of every thin frustrum a piece of rough granite be placed, extending from window to window, so as to rest on the window-jambs and on the inferior frustrum of the anta; these pieces of granite should then be cramped with iron to the ashlar and the antæ, and *every piece* of ashlar in the building should be cramped to the brickwork. By these means the exterior walls may be rendered sufficiently strong to bear the superincumbent weight of the structure, provided they are relieved of all lateral pressure from the arches.

The present plan of the building throws the whole of the western end

of the basement into one room of sixty-five by seventy-five feet, which has been vaulted with nine groin-arches, springing from four insulated granite piers, to the exterior walls. These arches exert a tremendous thrust against the outside walls, with nothing but the superincumbent weight of the structure to sustain it. I would, therefore, recommend that they all be taken down, and that walls of two feet in thickness be built, extending from the granite piers to the front and the back walls, as designated by the dotted lines on the plan of the basement; and that iron bars, of one inch by three, be introduced in these walls at the springing line of the arches, having one end of each bar securely fastened in the outside wall, and the other end in the granite pier. The arches may then be reconstructed upon the same plan, without danger to the edifice.

The same difficulty occurs in the plan for the model-room, directly over the one that has just been the subject of remark, and which is of the same dimensions. If the suggestion that I have made for altering the basement be carried out, then the same plan may be adopted in this room also, the walls in the basement affording foundations for the walls above. All the other rooms in the basement, as well as in this story, are (as I am informed by the superintendent) secured at their springing-line by iron bars, the partition-walls of the building having afforded an opportunity for effecting this object without exposing the bars.

The plan of the grand exhibition-room, which includes the whole of the upper story, being about sixty-five feet wide by two hundred and sixty feet long, provides for the same kind of vaulting as that of the lower stories. All the arches are to spring from columns to the exterior walls, suspending over this vast room more than 300,000 bricks, without any possibility of preventing the lateral thrust from acting on the outside walls; and that, too, almost at the very top of the building. Had the exhibition-room been vaulted on this plan, the building must have spread with the keying, and the arches have come down with the centres. The horizontal thrust exerted by each of these arches upon the outside walls, and which is resolved, in every instance, by the peculiar form of the arches, upon a single point, amounts to 12,256 pounds; while the resistance offered, under the most favorable circumstances, will not exceed 6,500 pounds.

I have seen arches on this plan, over small apartments, sustained by introducing iron bars at the spring, which are always exposed to view, but which are unquestionably an opprobrium to architecture. Even this plan, however, would not answer in the room in question. The exposure of bars of this description to the extremes of heat and cold, would most certainly endanger the structure, even if they were othewise unobjectionable.

In view of these considerations, I would recommend that all the walls of the lower stories running north and south, including those suggested to be built, be carried up through this story also, (as represented by the dotted lines on the plan marked C;) that the end of each wall be finished with a stone anta; and that an iron bar, of one inch by three, be placed in each of these walls, at the height of three feet six inches above the springing-line of the arch, and secured around granite posts of four or five feet in length, placed vertically in the front wall, at one end of the bar, and over the inside anta, at the other. All these compartments may then be groin-arched, without affecting the strength of the edifice, *provided* the banding be effectually executed. I am told by Mr. Ellsworth, the Superintendent of the present Patent Office, that the building will be quite as

convenient, if constructed on this plan, as it would if it were possible to carry out the original design.

My attention having been directed, by you, to the finish of the ends of this building, I would respectfully remark, that, as an extension of the present edifice will probably not be required for many years, the ends should now be finished with the same material as the front, and according to the same general design. I would, therefore, suggest that the present end-walls be taken down, and reconstructed with sand-stone ashlar and antæ, similar to the front. The loss of labor and materials, in making this alteration, would not exceed fifteen hundred dollars.

I have now, gentlemen, to add, that, in making these statements, I trust that I shall not be understood as casting any reflections upon a single individual concerned in either planning, locating, or executing the buildings that have been under consideration. I have given my whole attention to the works themselves, without having either seen the architect, or been apprized of any of the circumstances which induced him to adopt the arrangements of which I am speaking thus freely. I am well aware of the difficulties that an architect has to encounter in defending his plans from innovation, not unfrequently even after they are adopted; and I shall not be surprised to learn that all the errors and deficiencies I have been under the painful necessity of naming, have been committed at the instance of others, and against the better judgment of the architect.

Having previously given you my reasons for recommending the taking down of the entire building now being erected for the Treasury Department, I would further suggest that, should this course be decided on by Congress, and should the present site be insisted on for the future buildings, they may be arranged between F and G streets, according to the plan of your architect, (marked A,) so as to be much more convenient than they now are, and without interfering with the plan of the city. I hope, however, that Congress will be induced to do more for the architectural character of the nation, than could possibly be effected on these grounds.

Should the Treasury building be taken down, and reconstructed according to the plan I have just referred to, the present State Department must then be taken down also; and, should a corresponding improvement be made on the western side of the President's house, the Navy and War Departments must also be removed; and supposing it possible to retain the present Treasury building, the State Department must even then inevitably come down, as its relative position and height with the Treasury building precludes all possibility of ever harmonizing it with the new structure.

It should also be remarked, that none of the buildings now occupied by the State, Navy, or War Departments are fire-proof; their occupancy, therefore, unquestionably jeopardizes the archives of the nation.

From these considerations, it appears evident to me that every building now standing on the plot of ground bounded by Fifteenth and Seventeenth streets, and by the President's avenues on the north and south, except the President's mansion, must be taken down, and other buildings erected, before suitable and safe accommodations can be afforded for the transaction of the business of Government.

If, then, we have to look forward to no distant period for the reconstruction of all these buildings, I would respectfully ask leave to make a suggestion or two in reference to the subject; and although I may seem to overstep the boundaries of my instructions, the opinions that I shall offer

have naturally grown out of the investigations I have found it necessary to make in the performance of the positive duties imposed upon me; they may consequently not be altogether out of place.

I would, therefore, respectfully suggest, that public buildings sufficiently spacious to accommodate all the departments of Government be constructed on Lafayette square. Here there is ample space for bringing all the offices under the same roof; the land is high and the situation healthy. Were buildings constructed on this ground according to the design furnished by your architect in 1834, with such improvements as his matured judgment would no doubt suggest, the effect would be far superior to anything of the kind in the world, and no nation on earth could boast a structure equalling it in adaptation to governmental purposes.

The view of an improvement like this from the President's house would be interesting in the highest degree; and the buildings, if creditably executed, would become the pride of every American.

The owners of property around the square might possibly suppose that the value of their property would be impaired by the appropriation of these grounds to the public buildings. This, however, with me is questionable; but even admitting it, what is the price of all this property (if Congress were even compelled to purchase it) to the importance of having a healthy and convenient situation for the building in which the weighty concerns of the nation are transacted, and under whose roof a thousand officers are constantly employed in sedentary pursuits?

I would then propose, that not only the new Treasury building, but *all* the buildings now occupied by the Navy, War, and State Departments, be taken down, and that the entire plot of ground from Fifteenth to Seventeenth streets be disencumbered of every building, except those in connexion with the President's mansion; and that the whole area be then enclosed with an ornamental iron railing, with entrance lodges of appropriate design on Fifteenth and Seventeenth streets opposite to F street. The President's house would then be seen from every part of the city; it would stand in solitary grandeur in the midst of its own grounds, and possess an air of comfort and freedom that can never be realized while other and inferior structures stand in juxtaposition with it.

Were the buildings now occupying these grounds adequate to the purposes for which they were intended, and had their architectural design and execution been such as to reflect on after-ages the spirit of the times in which we live, then would the propriety of taking them down be doubtful, even in view of the advantage that the President's mansion would derive both in appearance and comfort from their removal; but the utter impossibility of making any architectural display on the present site, that would be at all creditable to the nation, is unquestionable.

Another subject worthy of consideration, in reference to the public buildings of Washington, is the *frailty of the material* of which they are composed; this I consider a very great evil, and would earnestly recommend that a more *durable* as well as a more *beautiful* stone be selected for all the future public works.

In a very few centuries the sand-stone structures of Washington must inevitably perish; already are they hastening to decay, and in the very lifetime of their founders have begun to show evident marks of dilapidation. Considerable portions of the sand-stone of which these buildings are constructed is argillaceous; hence it is that we find parts of it mouldering

away by the action of the elements, frequently before the edifices in which it is used are completed.

These defects are not now as evident as they were before the buildings were painted, and the immediate action of the atmosphere upon the stone is prevented for the present by this process; but the expedient of painting, at best, affords but a temporary remedy, and, if repeated as often as will be necessary for the appearance of the works, the expense of it will very soon make the buildings cost more than they would if the most beautiful marble had been used.

In view of these considerations, I beg leave to suggest that all the future public buildings of Washington be constructed of the very best marble or granite that the country will afford.

I have the honor to be, with assurances of the highest consideration, your obedient servant,

THOMAS U. WALTER,
Architect.

To Hon. LEVI LINCOLN,
Chairman of Committee on Public Buildings,
House of Representatives, Washington.

Extract of a letter of Thomas U. Walter, Esq., architect, to the chairman of the Committee on Public Buildings, dated

WASHINGTON CITY, *February* 10, 1838.

You also wish me to say whether the materials of the new Treasury building (in the event of its being taken down) could be used in the construction of a new Post Office; to which I would respectfully reply that there would be no difficulty whatever in arranging the design for the Post Office, so as to bring all the materials of the Treasury building into use, with very great advantage.

C.

WASHINGTON CITY, *February* 21, 1838.

GENTLEMEN: As you have thought it proper to elicit from a professional architect an "opinion as to the fitness of the site selected for the location of the Treasury building, and the adaptation of the plans to the object and uses for which it is erected;" and further to express an opinion on "the stability of the structure and the architectural effect, as well of the Patent Office as the Treasury building;" and have been pleased to place a copy of this gentleman's report in my hands, to enable me to justify my practice, in all points, where a difference of opinion occurs; I will do so as briefly as the nature of the subject comports. I, therefore, respectfully present the following statement to the consideration of the committee:

First. As to the unsuitableness of the site. On this point no difference of opinion exists between the umpire and myself. Had I exercised any control over this location of the building, the ground now occupied by it would never have been selected by me. The decision would have turned

upon another spot, had authority been given, or even discretion allowed in making the choice. But the recommendations of previous committees, grounded on full and zealous inquiries, were too explicit to warrant any misconception of their views and intentions. Plans, different from the one now in execution, were suggested; and the result is the following expression of opinion by the committee of the second session of the twenty-third Congress, in 1835: "The question of placing the buildings for the Executive Departments on *some other site*, where they might all be collected under one roof, has been attentively considered. That great convenience would result from this change to the public at large, to the members of Congress, and to the officers employed, cannot admit of a doubt; but so many conflicting interests would be set in motion by any proposition of this kind, and so many obstacles would be interposed, that it was determined, after mature deliberation, to relinquish what might be considered the best plan, for one that was of more easy attainment; and it was, therefore, concluded to recommend that the *location of the building should not be disturbed.*"*

As, in this instance, the action of the committee was merely preliminary, and as their report was not definitively disposed of by Congress at that session, the supposition is not unwarrantable, that further time would have afforded the committee further opportunities of canvassing the advantages of the other plans, and weighing the objections to the one which was recommended, though reluctantly, as "of more easy attainment." But the sequel proved that the lapse of a year brought no change in their views. The same, and almost insuperable difficulty of choice, which had modified their former recommendation, still remained unremoved; and in the supplementary report of the 28th of January, 1836, again adopting and recommending that of the 5th of February, 1835, the committee, after careful examination, still deemed it inexpedient to suggest any change of site, &c. Upon this recommendation the bill passed into a law; and the then Executive was charged with carrying it into operation. The letter of appointment, which I have the honor to hold, from the late Chief Magistrate, among other duties, made it obligatory on me to see to the construction of a "Treasury building and Patent Office; the former building to be erected on the *old site*, and the latter one on the square north of the Post Office."

With these instructions, it has been my best endeavor to comply. I hold it, then, as a corollary to the preceding documentary facts, that—

1st. Owing to the demands for office-room by the department intended to be accommodated on the chosen site, and wishing to avoid too great an infringement upon the President's square, the present position, arrangement, and extent of plan, were necessarily decided upon, and resulted in shutting out the view of the President's house from F street.

2d. That reference to all the plans for the Treasury building, laid before the committee in 1833 and 1834, will show that F street was never intended to interfere with the plan, as it would both break the unity of the design, and materially reduce the accommodation of office-room. Indeed, it is not evident why, to the natural disadvantages of the site, should be added the sacrifice of public utility to a mere *point de vue* from that street.

3d. That, touching this location of the building more especially, it will be apparent, by turning to the reports of the committees of the second session of the 23d, and of the first session of the 24th Congress, that final reference was made to this site only, for this building.

* Report Committee on Public Buildings, No. 90, February 5, 1835.

4th. That the committees, at the time, had other sites brought under their consideration, which my plans and descriptions of 1834 and 1835 will show, and which were recognised in their report.

5th. That, far from recommending a site other than the one selected, both committees, after a year's interval, still insisted on one "of more easy attainment."

6th. And, finally, that this decision of the committees, made after full reflection, matured by time, and unreversed by any contrary action, no doubt influenced the late Executive in his selection of the spot.

As an additional objection to the site, the unpleasant grade of Fifteenth street is adduced. This is certainly unfortunate, both in connexion with the beauty of the building and convenience of passage; but it was one of the accidents of the soil, which could not be directly eluded. The location was marked out, and the building must have risen, under all circumstances, from some point of the line of declivity. A change in this grade is, however, contemplated, which, with the area to be introduced in that section of the front dipping into the ground, will measurably remedy this natural defect. The eye will then be able to trace a *level line* for the base of the building, as it rises or descends the "inclined plane;" while a modification of the grade will make an important difference in its effect. So far as the first branch of the report relates to the disabilities of the site, I have essayed to show why they should not be charged to my agency. As facts in this case are the most important points for me to establish, I will not take up the time of the committee in desultory remarks. Mr. Walter is, however, mistaken in representing the Treasury building, when completed, as shutting out the view of the President's house from the avenues of approach. The diagram plan shows that the north line of the Pennsylvania avenue, extended out towards the President's house, will cut only a few feet of the southwest corner of the Treasury building, which will affect the vision but little, in the width of the avenue, between the capitol and the President's house.

Second objection: With regard to "the stability of the structure."

That there should be a wide difference of opinion between Mr. Walter and myself will not be considered extraordinary. He asserts that the walls of the Treasury building are too weak, and I counter-assert that they are full strong to sustain the whole fabric. Mr. Walter first assumes that the structure is inefficient; then proceeds to advance opinions on the nature of the composition and resolution of forces; and, standing upon his own assumptions, closes with an oracular prophecy. I am not aware that the committee are particularly desirous of examining any problem of dynamics; neither is it my inclination to enter into such an examination. I will merely state that the experience and practice of upwards of thirty years, during which time I have erected numerous *fire-proof*, as well as other buildings, public and private, warrant me in the solemn declaration, that a more permanent piece of work, or walls better capable of sustaining the span of arches with which they are now, or may hereafter be, covered, have never been constructed in this country. I speak, now, with regard to their *sufficiency* for the object intended; all beyond this, is a useless waste of materials, and an injurious thickness of walls for personal comfort. It has been my endeavor, and I have proved its practicability, to give to vaulted or fire-proof buildings the lightness of walls little exceeding that of good common buildings; which was a desideratum in architecture, as much on the ground of economy, as of safety and comfort. To elucidate this, I could

point the attention of the committee to a number of fire proof buildings erected by me, where I have thrown arches over rooms of larger dimensions than those of the Treasury, and from walls not more than two-thirds of the thickness of the Treasury walls, none of which have failed. One single fact of this nature will confute volumes of theory. I will instance a few of these buildings, in point ; all of which are now standing as intact as on the day they were finished.

The State fire-proof office, in Charleston, South Carolina, 65 by 55 feet, and 40 feet high, is erected of brick and stone, and vaulted throughout; the windows and shutters of iron ; some of the groin-arches are 18 by 17 feet span, springing one fourth their chord line, and from walls only 2½ *bricks*, or 22 inches thick, and, including the piers, 34 inches; (the Treasury walls, at the springing of the arches, are 51 inches thick, including the piers and pilasters; the span 15 by 20½ feet.) In the Charleston office, not a single bar of iron was introduced, or considered requisite, as bonds; and common mortar only used in the construction, and the work, withal, done by *contract*. Yet, under all these circumstances, the building stands firm to this day.

The lunatic asylum, in Columbia, South Carolina, is also a thorough vaulted fire-proof structure, up to the roof, 60 feet high. The main building is 100 feet front, 50 feet deep, and 60 feet high; the wings 45 by 26 feet each, and 48 feet high ; total front, 190 feet. A range of principal rooms, 18 by 20 feet, stretch along the line of the front; the walls are but 2½ bricks thick, exclusive of piers, except at the angles, where they are thickened a brick ; the groin-arches covering these rooms are segments of circles, whose versed sine is but 4½ feet ; no iron bars were used, and the bricks of which they were formed laid in common mortar, and the whole work done by *contract;* which, every one is aware, is rarely as faithfully performed as when done by the day, as in the Treasury building, under proper supervision. This was the first thorough fire-proof building, for a lunatic asylum, erected in this country, and, I believe, in England, where it gained some celebrity ; as frequent demands were made on me, from that country, for copies of the plans, &c., of the building, which were furnished. I urged upon the State the propriety and humanity of making this building fire proof, in consequence of the helpless character of its inmates.

I could mention half a dozen of court-houses also, and jails, in the south, all of which were made fire-proof in the office-story, where the rooms were fully as large as those stated above, and the walls sustaining the arches no thicker ; and these buildings not only erected by *contract*, and with common country materials, but by mechanics who were little acquainted with the construction of groin-arches or centring; yet none of these have failed, after a lapse of sixteen or eighteen years. But I will not take up the time of the committee further on this point, than to state a few particulars relating to some of the *custom-houses* designed by me, and erected within the last five or six years, in New England, which, at my earnest appeal to the department, I got made fire-proof.

The custom-house at *Newburyport*, Massachusetts, is built of granite, 44 by 60 feet, and 40 feet high ; the common-sized rooms are 22 by 15 feet ; the larger, 40 by 22 feet ; all vaulted, and springing on groins from walls not more than 22 to 24 inches thick, exclusive of angular piers. Here we have one room without any divisional walls, 40 by 22 feet, thoroughly arched, and the versed sine not more than 5 feet—a room larger

than any either in the Treasury or Patent Office—unbroken by columns or piers of support.

The custom-house at *New Bedford*, Massachusetts, is 50 by 52 feet, and 40 feet high; also built of granite. The common-sized rooms are 18 by 20 feet, vaulted with groin-arches springing from walls not more than two feet thick, exclusive of the angular piers in the corners. The large room is 47 by 20 feet, unbroken by divisional walls.

The custom-house at *New London*, Connecticut, is 45 feet square, and in the rear, where the large room is placed, upwards of 40 feet high. The walls are built of granite, and not more than about 20 inches thick. The small rooms are 20 by 16 feet, and the large room 42 by 20 feet—all covered with groin-arches springing from angular piers. Here, from the high and exposed state of the walls in the rear, some iron bars were thrown in, as auxiliaries, to strengthen the walls in the great room. This is the only instance, to my knowledge, where *iron bars* were used in these buildings, as aids to strengthen the walls.

The custom house at *Middletown*, Connecticut, is 53 by 48 feet, built of the brown free-stone. The exterior walls are two feet thick; the common rooms are 22 by 15 feet, and the large room 40 by 22 feet.

With respect to all these custom-houses, they were executed by *contract;* and when I proceeded to have prepared and fixed the centres for turning the first tier of arches, I found not a single bricklayer that knew how to turn a groin; and, further, that up to that day such a thing as a brick groin was not to be found in New-England. Thus I had to instruct the workmen, both in forming the centres and cutting the groin; and yet, with all these drawbacks, the buildings have proved the fidelity of the contractors in fulfilling their engagements.

The custom house *stores*, in *Baltimore*, now under construction, and designed by me, is a fire proof building, where all the arches *spring from piers, throughout the whole area*, with, I believe, not a single bar of iron around the external walls.

From calculations I have often made of the resolution of forces in a groin-arch, constructed in the way I have designed them, and the observations I have made in putting these arches into execution, I feel perfectly satisfied of the stability of the walls of the Treasury building, and, for the same reason, of those of the Patent Office building. Mr. Walter's opinion appears to run counter to mine, in this particular; but he must yield his theory to facts, after repeated trials. If he has constructed *his* arches according to the rules laid down in the books, he has secured a superfluous degree of strength, but at great and unnecessary cost, and certainly at the expense of comfort to the inmates of the house.

Some objection has been urged against the construction of the antæ, or pilasters, abutting the line of thrust of the arches. Being satisfied that there was strength enough in the general thickness of the wall to sustain the arches, I allowed the superintendent of construction, who is eminent in his business, to pursue his own views of putting the work together, and he gave a preference to the introduction of large blocks of stone, according to the practice at the capitol and President's house; but, at the same time, he has not neglected to preserve a suitable bondage in the courses connecting them with the main walls, by transverse and longitudinal iron clamps. I am surprised that Mr. Walter should not only have overlooked this fact, but have asserted the reverse.

Independent of the aid afforded by the action of the two longitudinal forces in every groin-arch, other aids have been thrown in during the construction of the work, such as massy granite braces crossing over the spandrils of the arches, binding the front and cross walls together; thus relieving the lower from the press of the upper arches, which have all tended to take off the *lateral* pressure from the outer walls; this aid, at the same time, acting as additional power, or like so much weight of wall behind the foot of the arches. Again, all these arches are constructed with *hydraulic* cement, which constitute them like one mass of masonry, relieving the lateral, and increasing the perpendicular press of the arches; and where the cut stone and brick work join, and bond, this cement has also been used. Again, bars of iron were let into the blocks of stone forming the pilasters, reaching from the spring of the arches some 16 or 20 feet along through the cross walls; and independent of all these precautionary measures, (which are in fact *sub*-strengthenings not absolutely necessary,) the work has been executed with extraordinary care, judgment, and fidelity. Nothing has been left undone, thus far, to secure to these buildings that permanency which their importance demands.

It is unnecessary to take up the further time of the committee on this subject, as interesting as it is to me. I have exhibited facts in opposition to theory or opinion; judge ye, which are most to be relied on. And now to facts in connexion with the Treasury or Patent Office buildings. There is not the least fissure, settlement, or giving, in any part of the work, so far, though the lower centres were struck at an early day, (and, in the Treasury building, even before any part of the upper walls was carried up,) and heavy weights of stone rolled over them in the prosecution of the work; thus testing fully the capacity of the walls to sustain the arches, even without the superincumbent weight. Such confidence have I in the full strength of these walls, even in their present exposed state, that, were it required to strike all the centres now standing, to test them, I will not hesitate to have it done.

From the remarks made by Mr. Walter on this point of the subject, the inference would be drawn that I knew nothing of my professional business. This does not comport with facts, or with his voluntary testimony in my favor on the first page of his report. If, then, I know my business, all that he alleges to the contrary must amount to naught; and if the fact has been proved, that I have constructed permanent arches of equal span, sustained by walls of half the thickness laid down by Mr. Walter, who deduces his results from theory, then either the theory is erroneous, or does not embrace all the circumstances of the case, or my system of construction has some merit in it, and I have gained for the profession an important advantage, namely, to economize in the construction of fire-proof structures, and remedy the evil of very thick walls in such buildings.

Third objection.—"Its want of adaptation to the purposes for which it was intended."

The sizes of the rooms in the Treasury building were determined on to suit the business that would be transacted in them. Accommodations for two clerks in a room was the extent necessary; and it was ascertained that the dimensions of the rooms in the existing buildings (State Department, &c.) were ample for this purpose. The area of these rooms served as data to regulate the size of those in the new building. That *all* the rooms should

have been adapted for office business, was not required, as rooms for other purposes had to be provided. Out of the whole number of rooms, (say one hundred and fifty,) there will be one hundred and twenty-nine suitable for office business and deposites for the public records. The floors of all the basement-rooms, in the rear or west side of the building, being above the ground, will be adapted for business. The measures taken to cut off the natural dampness of the earth, in near contact with these floors, will render them as dry as the other rooms. The rooms in the attic or third story (which are substitutes for roof or garret-rooms) will, from their lofty elevation, be as comfortable as those below; and, though the windows may not be so large, there will be sufficient light afforded, and, if more be required, there will be no difficulty in obtaining it from sky-lights: but even admitting that the front attic-rooms, next the colonnade, be used for records only, there will still remain one hundred and fourteen suitable apartments for business. With respect to the width of the corridors and passages, this was a matter of reference also, as to what *breadth was necessary;* and, as they would not be subject to be encumbered as those now in the State and other department buildings, the width of those was considered sufficient. I admit that it would have added much to their beauty had they been half as wide again; but there were difficulties opposed to such an enlargement, and I was confined to the simple question of the *necessary width* required. As regards the lighting of these corridors, though insuperable difficulties arise in securing a redundancy of light in long passages, yet I believe that ours will not be deficient in light, but that they will be sufficient for the transaction of the business of passing to and fro. The distance between the passages of light is about sixty eight feet; therefore, the obscurest point in the corridor will be only thirty-four feet from the passages of light; but, in addition to these sources of light, other auxiliary means are intended to be introduced.

Fourth.—"Its architectural appearance."

Criticism in *esthetics*, whether of works of imagination or of art, largely depends on the arbitrary rules of taste; and few, if any, are the buildings that have been erected in modern times, whose "architectural effect" has not been subject to its carpings, or has failed from eliciting a difference of opinion. Now, with respect to the colonnade of the Treasury building, as it is not erected, we can only judge of its future effect from the drawings, or speak of the effect of such a façade from other buildings having colonnades. The Bourse, in Paris, which has extended and unbroken colonnades, is regarded as the most magnificent of modern structures. The Louvre has been admired and often celebrated for its extended and lofty colonnade, elevated upon a *high basement;* and in a late English work, commenting on the monuments of Paris, after unqualified praise of the façade of the Louvre, the writer points out only one defect in it, and that is the *breaking of the line of the colonnade by the pediment* in the centre. The *effect* of a continuous colonnade (Mr. Walter's musico-architectural simile notwithstanding) is both grand and imposing; and its utility justifies its introduction, where the wealth of the community will admit. We have no colonnade of any extent in our country, and must form our judgment, as to its merits, from those abroad, if we have not professional skill to judge for ourselves. The objection that the colonnade was not continued round the south and north fronts in the design, will

be answered by reference to my second plan, embracing the Post Office additional building, *where* the colonnade was proposed to be carried round.

On the proximity of the building to the line of Fifteenth street, reference to the position of the present State Department building was obligatory; as also to avoid infringing too much upon the then given line of demarcation of the President's grounds. There is still room enough on Fifteenth street front, for the ascent of the steps, without encroaching upon the footways. The principal entrances to the building being intended on the south and north, the entrance from Fifteenth street becomes subordinate. It was to avoid the appearance of steps on this front (which was advisable for the effect of the colonnade) that the disposition of the side-steps was introduced; and I am justified in this by the introduction of a similar arrangement of steps to the colonnade of the Artemisium of Ephesus. It is an unfortunate circumstance for the storied fame of the architect, Dinocrates, that his ideas should not meet with Mr. Walter's approbation.

Should the committee recommend the taking down and removing the building from its present site, the cause will not be found to arise out of any defect in the structure itself, as I have shown, but on the unsuitableness of the site and the obstruction it gives to the views to and from the President's house. These drawbacks I could not control. I was hemmed within certain limits, and there compelled to move.

With respect to the objections adduced in reference to the Patent Office building, as they relate to the same subject, already examined under the head of the Treasury building, if I have not sustained my professional standing by the facts there enumerated, then I must stand condemned for constructing the Patent Office upon the same principles.

As to the finish of the ends of this building, the committee will recollect how much of economy entered into the views of Congress in relation to the expenditures on this edifice; and I was required to proceed accordingly. If the committee would obtain the sanction of the President to add so much of the wing buildings to the present structure as would enable a return or finish of the original ends to be made, equal to the depth of the main building, I would recommend the addition of these wings, which would unquestionably give a better effect to the building, while they would afford more room for business. It entered into my views, however, to finish these ends, but in an economical way. If the proposed extension of the wings should not take place now, I shall endeavor not to disgrace the fronts by the finish introduced at the ends.

In the concluding remarks of Mr. Walter, I fully concur that the most suitable site for the public office buildings is the Lafayette square, where they could be brought all under one roof, when a grand architectural display might be made, that would greatly tend to facilitate the public business. Reference has been had by him to my plans for the buildings made for this site in 1834; these were mere sketches of first ideas.

In regard to the material of which the building should be constructed, there is no question in the choice between the freestone and the granite, or the marble. When the subject was under consideration with the President, I respectfully urged the adoption of the granite; but the decision by the act of Congress had to be based upon the *least costly of the cut-stone material*, and the freestone was selected for both buildings.

Having endeavored thus far, gentlemen, briefly and hastily, to reply to the objections contained in Mr. Walter's report, I would close with expressing my regret at the necessity which has here compelled me to enter into

the defence of my professional practice, which, for the first time, has been called in question. If, gentlemen, I have sustained my ground before you, I shall be satisfied, and confidently leave the subject entirely to the disposal of the committee.

Respectfully submitted.

ROBERT MILLS,
Architect of Public Buildings.

The Hon. the COMMITTEE ON PUBLIC BUILDINGS.

MARCH 14, 1838.

GENTLEMEN: In addition to the facts stated in my report of the 21st ultimo, in relation to the fire-proof buildings erected by me at the several places named, with reference particularly to the comparative thickness of the walls with the arches they sustain, I would respectfully present some results deduced from the theory of the thrust of arches, taken from the calculus of the most practical writers on this subject, J. Rondelet, author of that valuable work, "Traité Théorique et Pratique de l'Art de Bâtir," Professor Hutton, and others, and draw a comparison between these results and my practice.

To render the subject plain and easy to be understood, I will present it in tabular form, where the result of each author's theory will be seen in connexion with the chord and versed sine of the corresponding arch, both of the cylindrical and of the cloister angular or groin-form, and agreeing with arches of the same character executed by me. The first column shows the diameter or cord of the arch; the second, the height or versed sine of the arch; the third, the thickness of the wall or pier required to sustain this arch, (whether cylinder or groin,) according to Rondelet; the fourth, the thickness of the same, according to Hutton and others; the fifth, thickness of the walls or piers sustaining the groin-arches of the *Treasury building;* the sixth, the thickness of the walls or piers sustaining the groin arches of the *Patent Office building;* the seventh, thickness of those of the buildings erected in South Carolina; the eighth, thickness of those of the custom-houses in New England; the ninth, thickness of those of the Bank of Philadelphia, which was the first fire-proof building erected by me. Here there was a series of arches of 13-feet chord sprung from a marble pillar only 9 inches diameter, resting on the *key-stone of a* 30-*feet* vault below.

It will be seen by the statement in the table, that the walls of all these buildings exceed the maximum thickness laid down by the theory; and, in the case of the Treasury and Patent Office buildings, more than doubled the thickness there laid down. Were all our arches, therefore, resolved into the cylindrical form, instead of the cloister or groin shape, (where a difference exists of one-third in the thrust,) still our walls would be sufficient to sustain them. I would further remark, that all the above results are based upon carrying the walls or piers of the arches no higher than to the crown of the vault, so that the *superincumbent* wall, which, in the construction of our buildings, we have to add, affords so much more weight to the abutment of the arches, which answers to the thickening of the abutments.

Respectfully submitted.

ROBERT MILLS,
Architect of Public Buildings.

The Hon. the COMMITTEE ON PUBLIC BUILDINGS.

Tabular statement, showing the comparism between the theory and practice of vaults in the case of certain arched buildings erected by Robert Mills, architect, in the several places named.

1.	2.	3.		4.		5.	6.	7.	8.	9.
Diameter or chord-line of arch.	Height or versed sine of arch.	Thickness of pier or wall, according to Rondelet, for a		Thickness of pier, according to Hutton and others, for a		Thickness of piers to groin arches of Treasury building.	Thickness of piers to groin arches to Patent Office building.	Thickness of piers to groin arches of the fire-proof offices, lunatic asylum, and other arched buildings in South Carolina.	Thickness of piers to groin arches of the custom-houses in New England.	Thickness of piers to groin arches of the Bank of Philadelphia.
		Cylyndrical arch.	Groin arch.	Cylyndrical arch.	Groin arch.					
Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.	Ft. in.
15 0	4 0	1 10	1 2½	2 6	1 8	4 3	4 6	2 10	3 0	2 10
20 0	4 0	3 0	2 0	4 0	2 9	4 3	4 6	2 10	3 0	2 10
20 0	10 0	2 0	1 4	2 6	1 8	4 3	4 6	2 10	3 0	2 10
15 0	7 6	1 6	1 0	1 10	1 3	4 3	4 6	2 10	3 0	2 10

D.

HOUSE OF REPRESENTATIVES,
Washington, February 28, 1838.

SIR: By the direction of the Committee on Public Buildings, I have the honor to request the sanction of your authority to the engagement of Alexander Parris, Esq., an architect of distinguished eminence, in an examination of the public buildings now in the course of construction. The committee find that there is an unfortunate difference of opinion between Mr. Walter and Mr. Mills, and also between the latter and other artists and builders, on many points of inquiry directed to their attention. It would be particularly satisfactory to obtain the judgment of so skilful and experienced an architect as Mr. Parris, in the matter. He happens to be now casually in the city, and the expense of his temporary engagement will be inconsiderable. Some testimonials of his character and qualifications, which have been presented to the committee, are herewith respectfully submitted to your notice.

With sentiments of the most faithful consideration, I have the honor to be, your obedient servant,

LEVI LINCOLN,
For the committee.

To the PRESIDENT *of the United States.*

The President approves of the employment of Captain Parris.

M. V. B.

CHARLESTOWN, *February* 2, 1838.

SIR: Mr. Alexander Parris, the bearer, is an architect, and wishes to be employed in building the new custom-house in Boston. His talents and judgment are without an equal in his profession. His acquaintance with the prices of materials, and those most suitable for the work in question, is of the utmost importance. He was employed by me in building the dry dock in this town; and in the masonry, particularly, his services were of great utility. His plans, which I understand he has submitted, for the custom-house, will show his merit as an architect and draughtsman; and I need add nothing more on this point.

His integrity to his employers and mode of dealing with all classes of workmen are those which I have never found in any other man, and recommend him for employment in any kind of public work like that which he is now desirous of superintending. He has recently been employed by the Navy Commissioners in building the rope-walk in the navy yard here, and has given, I believe, entire satisfaction. Proofs of his ability in the direction of public edifices are abundant in this neighborhood, and, from my personal acquaintance with his great merits, I cannot but recommend him to your particular notice for the employment he wishes.

With great respect, your obedient servant,

L. BALDWIN.

Hon. LEVI WOODBURY, *Secretary of the Treasury.*

BOSTON, *February* 15, 1838.

SIR: The bearer, Captain Parris, will spend a few days in Washington, and, as he is desirous of making your acquaintance, I take the liberty to introduce him. During the last war, Captain Parris commanded a corps of artificers, attached to the northern army under General Wilkinson. Since then, he has followed the profession of an architect, and, as such, has established for himself an enviable reputation.

I have the honor to be, very respectfully, your obedient servant,

S. THAYER, *Lieutenant Colonel.*

Brig. Gen. CHARLES GRATIOT,
Chief Engineer.

Instructions to A. Parris.

WASHINGTON, *February* 28, 1838.

Having been employed, at the instance of the Committee on Public Buildings, with the approbation of the President of the United States, to examine the position, plan of construction, and character of the work of the new Treasury building, your attention will be especially directed to the following particulars:

1st. The position of the new building, in reference to the present State Department, with a view to the *preservation* of the *latter in connexion*

with the former, so as to give it the exterior appearance of a part of the same structure. In this respect, you will consider in what manner the colonnade can be extended, or the principal wall made to conform; what changes will be required in the windows, height of the stories, arrangement of rooms, and passage-ways; or whether, in carrying out the plan of the architect, the old building must not necessarily be destroyed. On these points, you will be precise and explicit.

2d. You will examine the construction of the halls or passage-ways, and consider whether they are proportionate and convenient, having regard to the extent of the building and number of rooms to be occupied; whether they will be sufficiently lighted from the windows at the ends, and against the transverse passages; and what occasion there was for confining them to their present reduced width, in the plan of the building; and if, in your judgment, they are, in these particulars, defective, what remedy, if any, can now be applied?

3d. The construction of the basement story, in respect to the number of office-rooms it will afford sufficiently dry and light for occupation by clerks. And, in this view, you will regard the manner in which the light will be admitted into the corridors under the colonnade, and thence, secondarily, into the rooms back of the corridors. Give your opinion, also, whether these rooms will be sufficiently dry for the preservation of papers, if kept closed.

4th. The position of the windows in the attic story, and the effect of the colonnade and entablature upon the transmission of the external light through the windows, into the rooms, is another object of attention, so far as to determine whether those rooms will be suitable for occupation by clerks as offices.

5th. The character of the work, and the manner of construction, are to be throroughly examined, especially to see if the blocks which compose the antæ are well secured with the bond of the ashlar, and the whole so held together as not to separate and become displaced by the changes of temperature and the seasons. The manner of raising the arches, and the entire sufficiency of resisting power to counteract their horizontal pressure, are strictly to be scrutinized; and if additional guards and securities are deemed necessary, they are to be pointed out; and any and all other suggestions are to be made, which an inspection of the work may dictate.

6th. The proposed method of arranging the principal entrance from Fifteenth street; the direction and dimensions of the steps to ascend upon the colonnade; the grade of the street along the whole line of the building; and the manner of conforming the appearance of the ground to the level of the base, will also engage the attention of the examining architect, whose report, in these particulars also, will be expected.

7th. The same examination of the work and manner of construction as is required in the 5th article, before written, is also desired to be had upon the work and manner of construction of the new PATENT OFFICE; and the examining architect will report the result of his inspection and survey thereof.

By order of the Committee on Public Buildings and Grounds,

LEVI LINCOLN, *Chairman.*

ALEXANDER PARRIS, Esq.

E.

WASHINGTON, *March* 15, 1838.

GENTLEMEN: Having been employed at your request, with the approbation of the President of the United States, to examine the position, plan of construction, and character of the work of the new Treasury building, and having made such examination, so far as I was able in the limited time allowed me for that purpose, I now report:

In reply to the first particular to which my attention was directed by you, viz: "The position of the new building in reference to the present State Department, with a view to the *preservation* of the latter *in connexion with the former*, so as to give it the exterior appearance of a part of the same structure," I state that, on examining the plan and situation of the new building, I cannot find, by either, that there has been any calculation for connecting this building with the present State Department. The exterior and interior walls, chimneys, &c., of the old building, are not in the places requisite for a connexion with the new building; nor will the passage through the old building be in the centre of the intercolumnation, if the architecture of the new building be carried out. In my opinion, the old building cannot be so connected with the new, as to present uniformity of appearance; and the old building must, therefore, necessarily be destroyed.

2d. I was directed to "examine the construction of the halls, or passage-ways, and consider whether they are proportionate and convenient, having regard to the extent of the building and number of rooms to be occupied; whether they will be sufficiently lighted from the windows at the ends, and against the transverse passages." I find the centre, or main passage, to be only nine feet four inches in width; I think this passage much too narrow either for lighting or ventilating so great an extent.

Considering the length of the building, the number of rooms to be entered through this passage, the many occupants and others having occasion for ingress and egress through it, in my opinion, this great thoroughfare for the whole building should have been at least fifteen feet in width; and I have not been able to perceive any sufficient reason for confining this important passage to its present reduced limits. I consider this defect without remedy.

3d. I was also directed to examine the construction of the basement story, and report thereon.

From such observations as I have been able to make of the rooms in the basement story, I am of opinion that they will be too dark for the occupation of clerks, and too damp, when closed, for the deposite of papers.

4th. I am directed to consider the "position of the windows in the attic story, and the effect of the colonnade and frieze upon the transmission of the external light through the windows," &c.

The windows of the attic are to be small. I am informed, by the superintendent of the work, that they are to be only four feet square, the top coming but a little over five feet above the floor. The soffit, or under side of the entablature to the colonnade, will be placed but a small distance above the tops of the windows. All these arrangements combine to render the rooms dark, and, in my opinion, they will not be sufficiently lighted, especially in cloudy weather, to render them suitable "for the occupation of clerks."

5th. It is directed that the character of the work, and the manner of construction, be thoroughly examined. I find the character and construction of the work to be very much as described by Mr. Walter, who has preceded me in examining this structure, in whose judgment and opinion I place great confidence. It is decidedly my opinion that the walls of this building are not sufficiently strong to sustain the lateral pressure of the arches to be continued above the present height. I beg leave to suggest (should the work be continued) that cast-iron beams, with brick arches, be substituted for the groined arches. This flooring is much used in cotton-mills and other structures (where the walls are thin) in England, and requires no thicker wall for its support than floors of timber. I lately constructed floors of this kind at the navy yard near Boston, which answered every expectation.

6th. My opinion is requested upon the proposed method of arranging the principal entrance from Fifteenth street, the direction and dimensions of the steps to ascend upon the colonnade, the grade of the street along the whole line of the building, and the manner of conforming the appearance of the ground to the level of the base.

To these interrogatories I am at a loss for an answer. I cannot, in the short space of time allowed, fall upon any plan for a suitable entrance from Fifteenth street, that would comport with the architecture of the building; nor do I see any remedy for the disagreeable appearance, owing to the rapid grade of this street. I therefore beg leave to refer to the able report of Mr. Walter, in whose opinions, as to the unsuitableness of the site, and want of adaptation to the purpose for which it is occupied, I fully concur. Adaptation is among the leading features in architectural effect. The most elegant structure that art can devise, may present an ordinary appearance in an unsuitable location.

7th. I am also requested to make the same examination of the work and manner of construction of the new Patent Office, as is required, in the 5th article of my instructions, to be made of the new Treasury building.

In compliance with this request, I examined the work and construction of the Patent Office.

The whole structure having been described by Mr. Walter, it is unnecessary to go over the same ground. I believe the vaulting in the basement story will be sustained by the exterior walls, when carried up to their intended height, and that the basement may therefore remain undisturbed. I also believe, and understand that the superintendent is of the same opinion, that the vaulting which is now completed in the second story may be secured by iron ties, and that may therefore remain as it now is; but I recommend that all the vaulting remaining to be constructed, be of a spheroidal form. This form of vaulting has been, within a few years, introduced into some of the public buildings in England, and is found to require less abutment than cross arch-vaulting. When the circular or dome is hooped with iron, there is little more lateral thrust than if it was formed of a single piece, and may be supported at four points, like a slab of stone. I have constructed some rooms in this manner in the new court-house at Boston, and used the same kind of arch at the powder-magazine lately built at Chelsea, near Boston. The Board of Navy Commissioners have been so well pleased with its construction, that they have had one built on the same plan at New York, and ordered another to be constructed at Pensacola.

With this change of vaulting, and by strengthening the bond in the exterior wall, and with such iron ties as may be introduced, I have no hesitation in saying that the plan can be carried out, with but very little alteration, without hazard of failure. The projection of the centre part of the north front, and the portico of the south front, with antæ of considerable projection, will contribute very much to counteract the lateral thrust of the arches of the centre portion of the building.

I am not informed what kind of roof the architect has designed to have placed on this building. Presuming that it will not be stepping too far out of the course pointed out by the committee, I beg leave to suggest that the roof be constructed of iron, and covered with copper.

The entablature that is to surround the building will be nearly twelve feet in height, and three feet four inches thick, of solid masonry. This can be so connected with the roof by iron ties, as to form a complete band. It is objected by some architects, that iron is not suitable for ties, owing to its liability to be expanded and contracted by the different temperatures of the atmosphere. The expansion or contraction arising from this cause, will, however, be very inconsiderable, as it has been ascertained by experiment that iron expands only 0.0000740th part of an inch to each degree of increased temperature in one foot of length. The difference in temperature in buildings kept comfortably warm in winter and cool in summer, cannot be more than forty or forty-five degrees; consequently, the expansion in sixty feet, which is nearly the breadth of the Patent Office, will not amount to more than about the fifth part of an inch. It will be easy to guard against any thrust, by constructing sliding joints in such way as to hold the building, and at the same time not to create any extension of the walls. It is very difficult for me to give a particular description of the mode of constructing any building, without referring to drawings and diagrams, which, I presume, is not desired by the committee.

On inquiry, I find that nearly all the smoke-flues are to be carried up in exterior walls, and terminate at the top of the blocking-course which surmounts the cornice. If left here, they will be very likely not to take off the smoke; and if carried up to the level of the apex of the roof, they will present a very disagreeable appearance. I would, therefore, recommend that those flues be converted into ventilators, and that the whole building be heated by hot-air furnaces of sufficient capacity, in the basement story, to be so constructed as to pass the rarified air under the floor or pavement of each apartment, hall, and passage. This mode has been adopted in some of the London fire-offices, and is said to be the best method of heating buildings, equally excelling in the purity of the heated air, in the convenient and beneficial way in which it is delivered, (through the flues,) in the safety from conflagration, in the economy of fuel, and in the security against inconvenience from smoke or dust. In the language of a foreign author, "this mode of heating large buildings cannot fail to be generally adopted, wherever it can be applied."

In executing the trust reposed in me by the committee, I have endeavored, by inspection and examination, so far as practicable, to make myself acquainted with the construction of the buildings, so far as they had been carried forward, and with the ulterior finish, as indicated on the plans. It has not been my wish to give any opinion unfavorable to the structure, and consequently I entered upon the examination with the intention of

suggesting no alterations except where indispensably necessary, and of intimating no doubts in cases where, in my judgment, the plan and the work did not clearly justify them. I might have been more elaborate in my report; but my attention having, by the written directions of the committe, been particularly drawn to specific inquiries, to those I have endeavored faithfully to respond.

I have the honor to be, with great respect, your obedient servant,

ALEXANDER PARRIS.

Hon. LEVI LINCOLN,
Chairman of the Committee.

WASHINGTON, *March* 16, 1838.

SIR: As some of the Committee on Public Buildings have inquired what my experience has been in architecture, it may not be improper for me to state that I commenced house-building in early life. In 1806, I was employed by the late Commodore Preble to build him an extensive dwelling at Portland, Maine. On the completion of this work, I was employed by the United States as superintendent in erecting a fort in that harbor. I then removed from Maine, and spent much time in improving myself in architecture and building in general, visited New York and Philadelphia. Having settled in Boston, I was engaged by the late Jonathan Mason, Esq., to go to Richmond, Virginia, and plan and superintend the building of a large dwelling house for John Bell, Esq. During my stay there, I planned and superintended, also, the building of a dwelling house for John Wickham, Esq. On the declaration of war, in 1812, I was appointed, by the President of the United States, superintendent of artificers, and joined the northern army at Albany, and served until the close of the war, in 1815, when I again returned to Boston, and recommenced the business of my profession. In the spring of 1816 I was engaged to plan and build an arsenal for the United States, at Watertown, near Boston. Since that time I have been constantly engaged on various buildings; have planned and superintended several large houses in Boston, one for David Sears, Esq., St. Paul's church, the Massachusetts general hospital, a court house and prison in Boston, improvements in the State prison at Charlestown, the market, and several of the banks in Boston, a church in Quincy, called Adam's temple, marine hospital at Chelsea, near Boston, and many other buildings. In 1827, Colonel Baldwin commenced the dry dock at Charlestown navy-yard, and I was employed as assistant and superintendent of the work. The next season the dry dock at Norfolk was commenced under the same direction. These works engaged my services until 1832, when they were completed. The works were so arranged between Colonel Baldwin and myself, that he superintended at Charlestown and I at Norfolk during the summer months, and he at Norfolk and I at Charlestown during the winter months. Since the completion of these works I have been employed by the Government, under the direction of the Board of Navy Commissioners, on various public works at the navy-yard at Charlestown.

I have the honor to be, with great respect, your obedient servant,

ALEXANDER PARRIS.

Hon. LEVI LINCOLN,
Chairman of the Committee on Public Buildings.

F.

TREASURY DEPARTMENT,
December 18, 1837.

SIR: In compliance with your directions, I have the honor to report to you the annexed schedule, showing the accommodations which will be required for the offices of the Treasury proper, in the building now being erected on the site of the old Treasury buildings.

I am, very respectfully, your obedient servant,

LEVI WOODBURY,
Secretary of the Treasury.

To the PRESIDENT.

OFFICE OF THE SECRETARY OF THE TREASURY.

Sixteen rooms, one of which to be at least 25 or 30 feet by 20; the others to be not less than 15 feet by 20, each.

OFFICE OF THE FIRST COMPTROLLER.

Twelve rooms, at least 15 feet by 20.

FIRST AUDITOR.

Ten rooms, at least 18 feet by 20.

FIFTH AUDITOR.

Five rooms, under the present organization of the office.

REGISTER.

Fifteen rooms, at least 18 feet by 20.

TREASURER.

Eight rooms.

SOLICITOR.

Four rooms.

COMMISSIONER OF THE GENERAL LAND OFFICE.

Two rooms, 20 feet by 30; six rooms, 18 feet by 25; eighteen rooms, 18 feet by 20; twenty-four rooms, 16 feet by 20. In all, fifty rooms.

Making, in the aggregate - - - -	120 rooms.
Add for First Comptroller, and one commissioner of the revenue - - - - -	12
	132

P. S.—The above computations exclude all the bureaus connected with the Treasury Department, whose places of business can more conveniently

be in the buildings occupied other departments, the accounts of which they supervise. Should one of the Comptrollers be made solely an accounting officer, and the other act solely as commissioner of the customs, it will be necessary to have them both occupy the Treasury edifice, and would require at least ten or twelve more rooms. This would fill up nearly all the rooms in the new edifice, suitable for any purpose except the deposite of papers, whether in the basement or other stories.

L. W.